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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,961	09/15/2003	F. Conrad Greer	50715/P005US/10311739	1112

29053 7590 10/27/2006

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EXAMINER

NGUYEN, NGOC YEN M

ART UNIT PAPER NUMBER

1754

DATE MAILED: 10/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/662,961

Applicant(s)

GREER, F. CONRAD

Examiner

Ngoc-Yen M. Nguyen

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's election without traverse of Group II in the reply filed on July 27, 2006 is acknowledged.

Claims 1-6 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on July 27, 2006.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mahmood et al (4,938,945) in view of Ong et al (5,698,483) and Babor ("Basic College Chemistry", Second edition, 1953, pp. 255-260).

Mahmood '945 discloses a process for producing high purity anhydrous FeF_3 by reacting ferric chloride with liquid anhydrous HF (note claim 1).

The difference is Mahmood '945 does not disclose the steps of dissolving ferric chloride in a solvent solution and blending the obtained ferric chloride/solvent solution with a polymer.

Mahmood '945 does disclose that the ferric fluoride is known as a catalyst in organic reactions (note column 1, lines 10-11). In order to effectively promote the reactions, the catalyst should be in contact with the reactants.

Babor is applied to teach that since there is more contact surface in a finely ground mixture than in a coarsely ground one, it is to be expected that the reaction will be faster the finer the particles and the more intimately they are mixed (note page 256, under "b. State of subdivision").

It would have been obvious to one of ordinary skill in the art at the time the invention was made to produce ferric chloride, as disclosed in Mahmood '945, with as fine as possible particle size to increase the surface area which in turn increases the reaction rate, when the ferric chloride is used as a catalyst in organic reactions.

Ong '483 discloses a process for producing nano size powders comprising the steps of mixing an aqueous continuous phase comprising at least one metal cation salt with a hydropolymeric organic polymeric disperse phase, forming a metal cation salt/polymer gel; and heat treating said gel at a temperature sufficient to drive off the water and organics within said gel, leaving as a residue a nanometer size powder (note claim 1). The process for producing nanometer particle-size powders in accordance to Ong '483 produces an intermediate gelled hydrophilic polymer structure in which the aqueous, ionic solution is "frozen", thereby preserving uniform dispersion of the metal ions within the polymer structure. In addition, the process requires only two major raw materials, an aqueous salt solution and a hydrophilic polymer. In comparison to other known processes for producing nanometer particle-size powders in which the polymer-

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to-oxide ratio is very high, typically on the order of 50:1, the organic media-to-powder product ratio in accordance with the process of this invention is as low as 1.7:1 for 8YSZ. Finally, the gaseous products produced in accordance with the process of this invention are essentially environmentally benign, namely carbon dioxide (CO_2) and water (H_2O).

Ong '483 discloses that when a hydrophobic polymer is added to an aqueous metal salt solution, it swells as it absorbs the solution into its structure (note column 4, lines 34-38). The metal cation salt can be chlorides (note column 4, lines 64-66) and from the group including iron in Group 8 (note claim 5). Thus, the "aqueous metal salt solution" can be a solution of ferric chloride, which is considered as the same as the claimed ferric trichloride/solvent solution.

Even though Mahmood '945 discloses that the reaction is conducted in the substantial absence of oxygen, water or an oxidizing agent, however, since the water used in the process of Ong '483 is absorbed into and "frozen" in the polymer, the water would not have interfere with the reaction disclosed in Mahmood '945.

For other process conditions as required in the dependent claims, it would have been well within the skill of the artisan to optimize or select appropriate conditions for the process in order to obtain the best results.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the process of Ong '483 in combination to the process of Mahmood '945 in order to produce nano particle size of ferric chloride, which would

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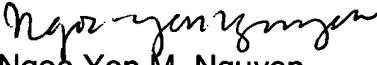
have high surface area to promote the reaction rate (note reason as stated in Babor above).

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (571) 272-1356. The examiner is currently on Part time schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Stanley Silverman can be reached on (571) 272-1358. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 or (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed (571) 272-1700.


Ngoc-Yen M. Nguyen
Primary Examiner
Art Unit 1754

nmn
October 16, 2006